IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT :	Craig C. KLOCKE
SERIAL NO.:	10/686,369
FILED :	October 15, 2003
TITLE :	CONTROL SYSTEM FOR HYDROSTATIC PUMP
Group/A.U.:	3746
Conf. No. :	6717
Examiner :	Leonard J. Weinstein
Docket No.:	P06629US0-5195

Mail Stop - Amendment
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

AMENDMENT

In response to the non-final Office Action dated August 11, 2008, please amend the above-identified application as follows:

A Listing of the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Certificate of Electronic Transmission

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office via EFS-Web (United States Patent and Trademark Office's web-based patent application and document submission) on this 29th day of September 2008.

Timothy J. Zarley

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (withdrawn) A control system for a hydrostatic unit having a swashplate comprising:
an electronic means for producing a dithered output signal;
a pressure control adapted to receive the dithered output signal and position the swashplate.

2. (withdrawn) The control system for a hydrostatic unit of claim 1 wherein the electronic means is a microprocessor.

3. (withdrawn) The control system of claim 2 wherein the microprocessor receives information from a set point command signal.

4. (withdrawn) The control system of claim 2 wherein the microprocessor receives information from a feedback sensor.

5. (withdrawn) The control system of claim 1 wherein the pressure control is a flapper nozzle style pilot valve with two boost spools.

6. (withdrawn) The control system of claim 1 further comprising: a servo system operably connected to the pressure control and swashplate.

7. (previously presented) A method of controlling the angle of a swashplate of a hydrostatic unit having a swashplate comprising steps of:
generating an electric signal based on a set point signal;
receiving the electric signal in a microprocessor;
interpolating the information from the electric signal using an algorithm contained in the microprocessor;
sending an output signal that is superimposed with a dither signal from the microprocessor to a pressure control;
generating a pressure signal in the pressure control;
determining a slew rate of the swashplate based on the pressure signal; and
displacing the swashplate.

8. (original) The method of claim 7 wherein the set point signal is generated by measuring an operational parameter.

9. (original) The method of claim 8 wherein the operational parameter is the angle of the swashplate.

10. (withdrawn) The method of claim 7 wherein the algorithm is a PID type algorithm.

11. (withdrawn) The method of claim 7 wherein the algorithm is a PID + feed forward algorithm.

12. (withdrawn) The method of claim 7 wherein the algorithm is a KIDT1 algorithm.

13. (withdrawn) The method of claim 7 wherein the pressure control is a flapper nozzle style pilot valve with two boost spools.

14. (original) The method of claim 7 wherein the pressure control is a flapper nozzle style pilot valve with one boost spool.

15. (withdrawn) The method of claim 7 wherein the pressure control is a flow control.

16. (withdrawn) The method of claim 7 wherein the pressure control is comprised of two pressure controls.

17.-18. (cancelled)

19. (withdrawn) A control system for a hydrostatic pump having a swashplate comprising:
a feedback sensor adapted to sense the angle of the swashplate;
a microprocessor adapted to receive information from the feedback sensor and produce a dithered output signal;
a pressure control adapted to receive the dithered output signal and position the swashplate.

20. (withdrawn) The control system of claim 19 wherein the microprocessor is also adapted to receive information from a set point command signal.

21. (new) The method of claim 7 further comprising the step of receiving a feed back signal within the microprocessor that is dependent on an angle of the swashplate.

22. (cancelled)

REMARKS/ARGUMENTS

Claims 1 - 16 and 19 - 21 are pending in the application. However, claims 1 - 6, 9 - 13, 15, 16, 19, and 20 are withdrawn from consideration. Claims 7 - 9, 14, and 21 are rejected under 35 U.S.C. § 103 as being unpatentable. The rejections will be addressed below.

The rejections of Claims 7 - 9, 14, and 21 under 35 U.S.C. § 103

Independent claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Du(U.S. Pub. No. 2002/0176784) (hereinafter "Du 784"), as evidenced by Du et al. (U.S. Pat. No. 6,375,433)(hereinafter "Du '433") and Fuji et al. (U.S. Pat. No. 4,747,754) in view of Kuraghaki et al. (U.S. Pub. No. 2001/0017077). Claim 7 requires, inter alia, "sending an output signal that is superimposed with a dither signal from the microprocessor to a pressure control; generating a pressure signal in the pressure control; [and] determining a slew rate of the swashplate based on the pressure signal". The Office Action states that the Du 784 reference fails to disclose the limitation of a method including sending an output signal that is superimposed with a dither signal. However, the office action asserts that it would have been obvious to one of ordinary skill in the art to alter the method of controlling the swashplate as taught by Du 784, modified by combining a spool with a solenoid to provide an electro hydraulic valve as taught by Du/Fuji, to superimpose a dither on the solenoid current, as taught by Kuragaki, in order to alter a valve's position more smoothly than when a dither is not superimposed. Applicant respectfully disagrees and traverses the rejection.

The only way based on the teachings of the prior art, to arrive at the claimed invention, is to use the claim as a frame,

taking individual, naked parts of separate prior art references where employed as a mosiac to recreate a facsimile of the claimed invention. W.L. Gore & Associates v. Garlock, Inc., 721 F.2d, 1540, 1552 (Fed. Cir. 1983). Applicant respectfully asserts that one of ordinary skill in the art would have no motivation to combine the Du reference which uses responsive servos to change the angle of a swashplate, with the Fuji or Kuragaki references that utilizes a solenoid to move a spool valve/valve mechanism from a first position to a second position only. The Du 784 reference is directed to a method which uses a servo valve to responsively move the swashplate to the desired swashplate angle position to maintain consistent pumping under varying loads. (Du 784, paragraph 0006, paragraph 0007, second sentence) The swashplate's angle of inclination α is controllably adjustable by servos, which continuously vary this angle of inclination based on algorithms which factor in changes in pressure. (Du 784 paragraph 0017, second sentence, See paragraphs 0018 - 0052) Thus, the disclosure of the Du 784 reference is devoted to servos that can continually adjust the angle of the swashplate to any angular position that the algorithm indicates in order to maintain continuity under various operating conditions.

When faced with the problem of finding a way to continuously vary the angle of the swashplate in response to varying loads, Applicant asserts that one of ordinary skill in the art would not consider references such as Fuji or Kuragaki that utilize a solenoid, because a solenoid has a very limited range in terms of responsiveness. This is because a solenoid operates in only one of two states: activated or de-activated, as the cited prior art references recognize. Fuji teaches the use of a solenoid that can be energized and de-energized, and

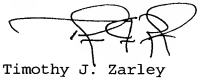
the solenoid's energized or de-energized state causes a spool valve to move from a first position to a second position only. (Fuji, col. 3, lines 1 - 30) Similarly, Kuragaki teaches superimposing a dither on a solenoid current in order to simply open a valve mechanism. (Kuragaki, paragraph 0004) Therefore, the disclosures Fuji and Kuragaki would not be instructive to adjust the position of a swashplate to whatever angle an algorithm determines, because utilizing a solenoid would only allow the swashplate to be positioned at one of two angles. Furthermore, Applicant respectfully asserts that factoring-in the determination of a slew rate into the swashplate displacement would render the solenoid a far less feasible option. Therefore, based on the above remarks, Applicant respectfully asserts that one of ordinary skill in the art would have no motivation to combine the cited prior art references together, and as a result, a prima facie case of obviousness in regard to claim 7 has not been established. Furthermore, claims 8 - 9, 14, and 21 depend on the limitations of claim 7, either directly or indirectly, and overcome the obviousness rejection for that same reason.

CONCLUSION

If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone the undersigned at 515/558-0200.

All fees or extensions of time believed to be due in connection with this response are attached hereto; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account 50-2098.

Respectfully submitted,



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